Small Business Innovation Research/Small Business Tech Transfer

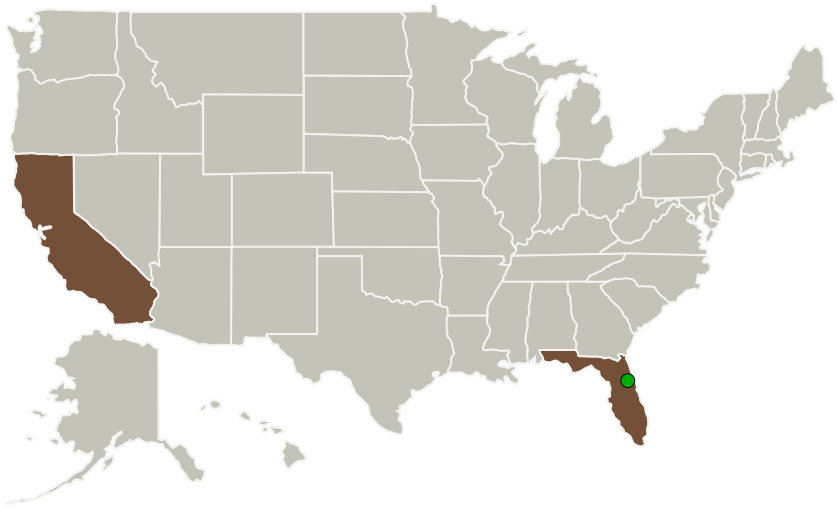
Regeneratively-Cooled, Pump-Fed Propulsion Technology for Nano / Micro Satellite Launch Vehicles, Phase I

Completed Technology Project (2013 - 2013)

Project Introduction

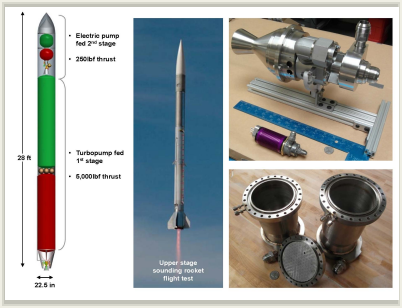
Ventions proposes the development of a pump-fed, 2-stage nano launch vehicle for low-cost on demand placement of cube and nano-satellites into LEO. The proposed vehicle uses high T/W and Isp pump-fed engines that operate at chamber pressures >750psi without the weight penalty of high pressure tanks, thereby realizing payload fractions in the 1-2% range. Ventions has already completed several component-level demonstrations in the area, and is proposing additional optimization / testing of a 5,000lbf LOX / RP-1 turbopump-fed engine as part of this Phase I in-order to demonstrate a flight-ready 1st stage propulsion system.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Ventions, LLC	Lead Organization	Industry	San Francisco, California
Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida

Primary U.S. Work Locations	
California	Florida



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Project Transitions

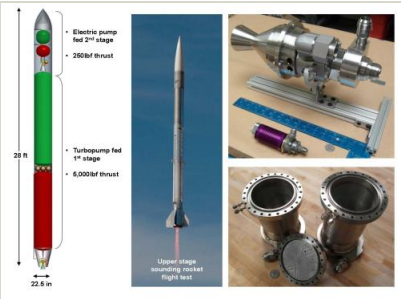
May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140699)*

Images



Project Image
Regeneratively-Cooled, Pump-Fed Propulsion Technology for Nano / Micro Satellite Launch Vehicles *(https://techport.nasa.gov/image/136972)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Ventions, LLC

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

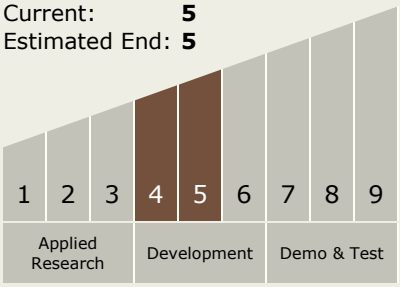
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Adam London

Technology Maturity (TRL)

Start: **4**
Current: **5**
Estimated End: **5**



Regeneratively-Cooled, Pump-Fed Propulsion Technology for Nano / Micro Satellite Launch Vehicles, Phase I

Completed Technology Project (2013 - 2013)

Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.1 Chemical Space Propulsion
    - TX01.1.3 Cryogenic

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System